REMARKS

Overview of the Office Action

The specification has been objected to for not including section headings.

Claims 1-5 and 7-15 have been rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 7,010,305 ("Immonen") in view of U.S. Patent Pub. No. 2004/0004949 ("Cayla").

Claims 6 and 16-17 have been rejected under 35 U.S.C. §103(a) as unpatentable over Immonen in view of Cayla, and further in view of U.S. Patent No. 7,031,718 ("Jouppi").

Status of the claims

Claims 1-17 remain pending. No claims are amended by the present communication.

Claim of Priority

The Office Action states that if Applicants wish to claim priority to prior applications, reference to the prior applications must be included in the first line of the specification. Applicant notes that the present invention is a National Phase application of International Application No. PCT/FR04/02095.

The specification has been amended to include reference to prior applications.

Objections to the specification

The Office Actions states that the specification has been objected for not including section headings.

The specification has been amended to include section headings.

Applicants submit that this objection has been overcome.

Rejections of claims 1-5 and 7-15 under 35 U.S.C. §103(a)

The Office Action states that the combination of Immonen and Cayla teaches all of Applicants' recited elements.

Independent claim 1 recites a method of quality of service management in a packet mode mobile communication network, for a service to be executed by a subscriber in the network to which a data stream corresponds. The recited method includes "determining a set of quality of service parameters including at least one first quality of service parameter corresponding to a subscriber priority and at least one second quality of service parameter related to a type of service; and determining an overall priority level (NPG) associated with the data stream based on a value of the at least one first quality of service parameter and a value of the at least one second quality of service parameter, the value of the overall priority level alone indicating a priority for accessing network resources to execute the service by the subscriber".

Immonen and Cayla, whether taken alone or in combination, fail to teach or suggest "determining an overall priority level (NPG) associated with the data stream based on a value of the at least one first quality of service parameter and a value of the at least one second quality of service parameter, the value of the overall priority level alone indicating a priority for accessing network resources to execute the service by the subscriber", as recited in Applicants' claim 1, because the combined teachings thereof fail to teach or suggest a global rank or priority level for each combination of subscriber priority (the first quality of service parameter) and type of service (the second quality of service parameter).

The Examiner concedes that Immonen fails to teach or suggest a particular service. However, Immonen also fails to teach or suggest the rest above-recited feature recited in Applicants' claim 1.

Immonen discloses a method for assigning values of service attributes to transmissions, radio access networks, and network elements. According to Immonen, a Serving GPRS Support Node (SGSN) 12 stores default Quality of Service (QoS) profile 14 which includes a set of common values for some service attributes for all customers (see col. 8, lines 32-36 of Immonen). The values for the service attributes including the delivery order, the maximum (Service Data Unit (SDU) size, the SDU error ratio, the residual Bit Error Rate (BER), the delivery of erroneous SDUs, and the allocation/retention priority (col. 8, lines 36-40). A subscriber specific Max QoS is stored for each customer/subscriber (col. 8, lines 47-51). A user equipment 11 may also transmit desired values of service attributes (col. 8, lines 63-66). Accordingly, there are up to three sets of attributes that are stored in the SGSN 12 (col. 9, lines 6-10).

The Examiner cites the col. 8, line 24 to col. 9, line 13 and the "parameter decision" shown in Fig. 1 of Immonen as teaching Applicants' step of "determining an overall priority level". Applicants disagree.

According to the cited passages of Immonen, "In the HLR 13, a subscriber specific service profile Max QoS 15 is stored for each customer/subscriber. The service profile 15 includes the best possible value for each QoS attribute according to the subscription of the respective customer. It contains mainly the subscribed values for the different attributes required for a real-time traffic class, either for the conversational or the streaming traffic class, i.e. values for the maximum bitrate, the delivery order, the maximum SDU size, an SDU format information, the SDU error ratio, the residual BER, the delivery of erroneous SDUs, the

allocation/retention priority, the transfer delay and for the guaranteed bitrate. In addition, a subscribed value for the traffic handling priority for non-real-time traffic classes is included in each subscriber specific service profile 15 in the HLR 13.

A user equipment 11 desiring a transmission sends a connection request to the SGSN 12. In addition, the user equipment 11 can also transmit desired values of service attributes to the SGSN 12 that are to be used for the requested transmission. Following the request of a transmission by a user equipment 11, the subscriber specific profile 15 for the customer owning this user equipment is transferred from the HLR 13 to the SGSN 12. In case there is still a recently transferred profile 15 for the customer owning the requesting user equipment 11 available in the SGSN 12, a new transmission is not necessary.

Consequently, there are now up to three sets of service profiles accumulated in the SGSN 12. Based on these service profiles, it is then determined in the SGSN 12 which values are to be employed for the different attributes required for the requested connection."

In other words, the "parameter decision" of Immonen cited by the Examiner refers to the operation of determining or selecting which QoS profile is to be used. As described above, a QoS profile according to Immonen is not an overall (global) priority level based on values of two different quality of service parameters, as recited in Applicants' claim 1. The QoS profile of Immonen is a set of common values for service attributes (see col. 8, lines 35-36 of Immonen).

Once the particular QoS profile of Immonen is selected, the values for each of the service attributes in the particular QoS profile are used to determine the actual quality of service.

Fig. 2 of Immonen discloses a flow chart, which indicates in detail how selection of the attributes is performed (i.e., how the "parameter decision" is made). The SGSN 12 selects the

particular QoS profile, which includes the values of attributes to be used for a requested transmission (see col. 9, lines 11-13).

Since Immonen determines a value for each of the service attributes, Immonen can not be considered to disclose "determining an overall priority level (NPG) associated with the data stream based on a value of the at least one first quality of service parameter and a value of the at least one second quality of service parameter, the value of the overall priority level alone indicating a priority for accessing network resources to execute the service by the subscriber", as recited in Applicants' claim 1.

More specifically, Immonen does not disclose that the service attribute values could be used together to determine a single specific attribute "alone indicating a priority for accessing network resources to execute the service by the subscriber", as expressly recited in Applicants' claim 1.

In other words, Immonen fails to disclose taking into account only one attribute (i.e., an overall priority level (NPG)), that is obtained from at least one first quality of service parameter corresponding to a subscriber priority level and at least one second quality of service parameter related to a type of service.

Further, Immonen provides no motivation for determining a single specific attribute, which defines a priority for accessing network resources.

The Examiner cites paragraphs [0032]-[0039] of Cayla as teaching determining an overall priority level (NPG) associated with the data stream based on a value of the at least one first quality of service parameter and a value of the at least one second quality of service parameter, the value of the overall priority level alone indicating a priority for accessing network resources to execute the service by the subscriber. Applicants submit that Cayla has been misinterpreted.

Cayla discloses methods and apparatus for optimizing the allocations of resources (e.g. time slots on the Agprs interface in a cellular mobile telecommunications network for packet data). The Agprs interface of Cayla is provided between a packet control unit (PCU) and a base station controller (BSC). The PCU of Cayla determines which cells of the network are least and most loaded and sends a request to the BSC to reallocate one resource unit (time slot) (see Abstract of Cayla).

According to Cayla, efficient use of resources on an Agprs interface 20 are effected by dynamically adapting the resource allocation based on at least one of the following: a) the amount of packet traffic of all the cells controlled by the BSC, b) the type of traffic handled, especially the Quality of Service (QoS) parameters of the traffic (see paragraphs [0030]-[0032] of Cayla).

The term "Quality of service parameter (or requirement)" recited in paragraph [0032] of Cayla refers to a general definition, and does not at all indicate that b) is a single overall priority level, as recited in Applicants' claim 1. Paragraph [0032] of Cayla clearly states that b) is the type of traffic handled or the Quality of Service (QoS) parameters of the traffic.

The non-limiting list of QoS parameters (i.e., items i-vii) are described in paragraphs [0033]-[0039], and include: priorities (e.g. a gold, silver, or bronze subscription), speech/conversational service, messaging service, streaming data service, interactive service, background service, and combinations of items i-vi.

If the resources of Cayla are allocated based on both a) and b) listed above, the resources are not allocated by "determining an overall priority level (NPG) associated with the data stream based on a value of the at least one first quality of service parameter and a value of the at least one second quality of service parameter, the value of the overall priority level alone indicating a priority

for accessing network resources to execute the service by the subscriber", as recited in Applicants' claim 1. Instead, the allocation of Cayla is based on both the amount of packet traffic, and the type of traffic handled, which not the same as determining an overall priority level, as recited in claim 1.

If the resources of Cayla are allocated based on a) only, there is no overall priority level based on two different parameters, as recited in independent claim 1, because a) includes only a type of traffic handled.

If the resources of Cayla are allocated based on b) only (i.e., the Quality of Service (QoS) parameters of the traffic), where the QoS is determined by combinations of QoS parameter (e.g., paragraph [0039] of Cayla as cited by the Examiner) the resources of Cayla are still not allocated according to the method recited in Applicants' claim 1.

Paragraph [0039] of Cayla only indicates that two or more of the above-mentioned types of QoS parameters can be used for particular types of requested services. For example, a gold streaming data service may have different QoS parameter values than a silver streaming data service. Further, specific data processing parameters may be associated with each QoS parameter.

Accordingly, Cayla does not disclose "determining an overall priority level (NPG) associated with the data stream based on a value of the at least one first quality of service parameter and a value of the at least one second quality of service parameter, the value of the overall priority level alone indicating a priority for accessing network resources to execute the service by the subscriber", where the at least one first quality of service parameter corresponds to a subscriber priority, and at the least one second quality of service parameter corresponds to a type of service.

In other words, paragraph [0039] of Cayla indicates the resources of Cayla are allocated

based on two separate parameters. Cayla does not teach using the two parameters to determine a single global priority level that is used to rank (with a single QoS value) a set of paired QoS values (e.g., a first user QoS level, and a first service type) with respect to another set of paired QoS values (e.g., a second user QoS level, and a second service type).

Cayla only describes two QoS parameters, in which only one parameter has a variable value (i.e., the type of service is fixed). Therefore, the QoS parameters of Cayla can be used at best to determine local ranks of priorities for data flows related to (or inside) a particular service (i.e., gold streaming data, silver streaming data, bronze streaming data).

Cayla clearly fails to disclose determining a global priority rank for a data flow with respect to other data flows corresponding to other types of services. For example, Cayla fails to teach or suggest ranking a gold conversational data flow with respect to a silver streaming data flow. In other words, a gold conversational data flow does not have an overall priority level that can be compared to an overall priority level for a silver streaming data flow.

In contrast to Cayla, Applicants' recited invention provides priorities in the processing of data flows based on the priorities of both the user and the service (see table in paragraph [0116] of Applicants' specification). According to Applicants' recited invention, each combination of user priority-type of service may be given a global rank (i.e., Global Priority Level). A specific data processing priority is associated with this rank by the operator. Consequently, this global priority level (rank) is then used in place of the various QoS parameter values for dynamically sharing resources between the different data flows to be processed.

Therefore, Immonen and Cayla, whether taken alone or in combination, fail to teach or suggest "determining an overall priority level (NPG) associated with the data stream based on a value of the at least one first quality of service parameter and a value of the at least one second

quality of service parameter, the value of the overall priority level alone indicating a priority for accessing network resources to execute the service by the subscriber", as recited in Applicants' claim 1.

In view of the foregoing, Applicants submit that Immonen and Cayla, whether taken alone or in combination, fail to teach or suggest the subject matter recited in independent claim 1. Accordingly, claim 1 is patentable over Immonen and Cayla under 35 U.S.C. §103(a).

Claims 10 and 15 recite limitations similar to claim 1 and are, therefore, deemed to be patentably distinct over Immonen and Cayla for at least those reasons discussed above with respect to independent claim 1.

Dependent claims

Claims 2-5 and 7-14,which depend from independent claims 1 and 10 incorporate all of the limitations of the respective independent claim and are, therefore, deemed to be patentably distinct over Immonen and Cayla for at least those reasons discussed above with respect to independent claims 1 and 10.

Rejection of claims 6 and 16-17 under 35 U.S.C. §103(a)

The Office Action states that the combination of Immonen, Cayla, and Jouppi teaches all of the elements recited in Applicants' claims.

Immonen and Cayla have been previously discussed and does not teach or suggest the invention recited in Applicants' independent claim 1.

Because Immonen and Cayla do not teach or suggest the subject matter recited in Applicants' independent claim 1, and because Jouppi does not teach or suggest any elements of

the independent claims that Immonen and Cayla are missing, the addition of Jouppi to the reference combination fails to remedy the above-described deficiencies of Immonen and Cayla.

Claims 16 and 17 recite limitations similar to claim 1 and are, therefore, deemed to be patentably distinct over Immonen, Cayla, and Jouppi for at least those reasons discussed above with respect to independent claim 1.

Claim 6, which depends from independent claim 1, incorporates all of the limitations of claim 1 and is, therefore, deemed to be patentably distinct over Immonen, Cayla, and Jouppi for at least those reasons discussed above with respect to independent claim 1.

Conclusion

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of all rejections, and allowance of all pending claims in due course.

Should the Examiner have any comments, questions, suggestions, or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

Respectfully submitted,

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